# NOAA Teachers at Sea
# Vince Rosato and Kimberly Pratt
# Onboard NOAA Ship RONALD H. BROWN
# March 9 - 28, 2006

**Log 4**

Scientific Log #4
March 19, 2005
Right off Abaco Island

A view of the RON BROWN from the Zodiac (a small boat).

**The "Way Cool" Factor**

Today I spoke to Lisa Beal who introduced me to the "Way Cool" factor of the science we're doing. I kept asking the question… why?… why?…why?… and now I realize how what we're doing makes sense. This is a physical oceanography trip and it's easy to get confused by the testing, measuring and chemistry that we're doing.

So, the Way Cool Factor:
The ocean has many currents, or rivers, running through it. Some vary with the seasons and are called inter-annual (more than one time per year). What is measured is the circulation and overturning of the ocean. We need to measure this overturning of water because it affects our climate and considering that two-thirds of our planet is covered with water, that's important to know.

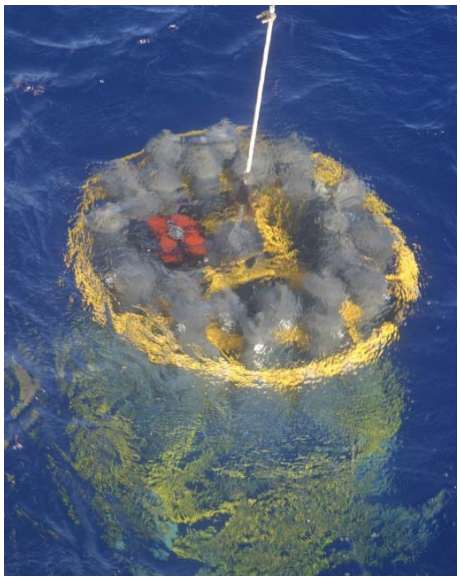
Also, water masses have separate identities. They all have a unique signature that is determined by the salinity (salt content) and temperature. It's sort of like a fingerprint. These water masses travel all over the ocean in both a horizontal flow and a vertical flow. Scientists track these water masses as they flow around the ocean.

What's really cool is some of these water masses are over 100 years old. For instance, North Atlantic Deep Water starts at the North Pole and travels all around the Pacific and even in the Indian Ocean and back again. It's sort of like a migration of water. The colder (measured by temperature) and more dense (measured by salinity) water sinks to the bottom and scientists can then follow it around the globe.

Pretty interesting huh?  It helps make what we're doing make sense.

**Interview with Dr. Molly Baringer, Chief Scientist**

Today I had the good fortune to sit and talk to Dr. Molly Baringer, Chief Scientist on the RON BROWN.  Molly is an Oceanographer with the National Oceanographic and Atmospheric Administration (NOAA), based out of Miami, Florida.  She's been with NOAA for 12 years and is currently working on the Deep Western Boundary Currents (DWBC) project.  The  Deep Western Boundary Time Series, take her all over the Caribbean and into the Florida Straits taking conductivity, temperature and depth (CTD) measurements to measure the conductivity, salinity, temperature and depth of the ocean.  She is studying the currents, or the rivers, in the deep water of the ocean.  This study has been on going and it will really help the scientists understand the ocean better.



The CTD seen here is just under the water's surface.

As a child, she always liked science.  She originally had a desire to be a neuroscientist and graduated from Tulane University where she was a pre-med/math major.  Her minor was in science.  She became a Research Assistant working with numerical models for a professor who was an oceanographer and, behold, her love for science coupled with the environment, became a perfect fit.

What she likes best about being a scientist is that she gets to be creative, learns new things every day, and she is valued for her thinking.  She spends most of the day and sometimes nights on board the RON BROWN checking data, supervising casts, problem solving, and overseeing all the science that is happening.

While at sea she really looks forward to talking to her two children, Anna and John, and her husband (a computer scientist) who are awaiting her return.  While at home, she really likes to spend time with her family helping at their school, checking their

homework, and going places and doing things. Her hobbies are quilting, needlepoint, Bridge, and before she had her children, she and her husband used to golf approximately 3-4 times a week.

She hopes that eventually we'll have an ocean observing program that will be institutionalized so we can continually monitor the state, or health, of our oceans. She states that being a scientist is a great profession. You get to be creative every day, you learn new things, and most of all you are valued for how you think.

**Assignment:** Compare the movement of water masses of the Atlantic with the migration of gray whales. In your science logs, draw a picture of both. Remember Gray Whales migrate (move) from Alaska (their feeding grounds in the summer) to Baja California warmer waters (for mating and calving) in the winter and back again. North Atlantic Deep Water masses move from the North Pole south, into the Pacific and back again.

**Personal Log – Kimberly Pratt**

Hi all. Until now Vince has been writing the scientific logs, but starting today I'll be submitting them as well. I've really missed discussing the science I'm learning with you. I was really happy to talk to Dr. Beal who quite simply explained what we were doing. It can get quite confusing and intimidating learning new things, but I'm adapting slowly. The weather has been beautiful. Yesterday we deployed the Argo Buoy with New Haven's name on it so we'll be able to track it. And we also deployed the drifter buoy that has been adopted by Cabello, Searles and Dr. Molly's daughter's school, Key Biscayne Community School. Today has been beautiful! Awesome weather, beautiful blue water and we even got cell service! I miss you all. Hello students! Keep e-mailing me and doing all your great work. Remember you are the brightest, best and most confident fifth graders (soon to be sixth graders)!

**Personal Log – Vince Rosato**

Thank you second grade reading buddies from Mrs. Mares class, for Juliet, the flat person, who has gotten in pictures with the drifter, visited the dining room, the bridge, the science lab and even went with the Zodiac party (speed boat) to get our passports cleared today. I'm sorry to report the laundry bag used to sink our Styrofoam cup mementos was lost at sea after ten years of loyal and faithful service. We're here off Abaco Island today. I looked out from the bridge deck into the starry night last night. In pitch dark the vastness of the heavens is AWESOME! It reminded me of camping in the mountains away from the city. Clear views, crystal smooth water and imagine no television and only random music for three weeks. I like it—very recollective. Thanks, also to NHTA for the blue shirts showing our dedication to students as our special interest. Finally, I was glad to call home today and find out in voice conversation all are well.